



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/787,172

06/12/2001

Ulrich Muller

MULL 101

6526

7590

03/07/2005

Gary W McFarron
Cook Alex McFarron Manzo Cummings & Mehler
Suite 2850
200 West Adams Street
Chicago, IL 60606

EXAMINER

DESIRE, GREGORY M

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/787,172

Applicant(s)

MULLER ET AL.

Examiner

Gregory M. Desire

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to communication filed 11/15/04.

Response to Amendment

2. Examiner acknowledges the amended claims and labels included in the drawings. The examiner withdraws objection of claims 1, 3-8 and 13 because they include reference characters, which are not enclosed within parentheses. The examiner maintains the claim objection of claims 9-13. The examiner maintains a missing abstract and specification failing to contain section headings. Applicant's arguments in view of 35 U.S.C 102 and 103 have been fully considered but they are not persuasive and are thus maintained. See response to arguments below.

Response to Arguments

3. Applicant argues (remark page 6 lines 16-18) Bullock does not disclose such a method and system of calibration. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "using reference points that are given in the measuring system, for example the edges of certain points inside of the projector and the camera, and then using these points to generate a reference plane, reducing effort to calibrate the system") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Art Unit: 2625

4. Applicant argues (remark page 7 lines 5-9) Kuhn et al is not analogous prior art. In response to applicant's argument that Kuhn et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, claims recite pattern is produced on the surface to be measured with aid of transparency. Kuhn system clearly recites a pattern is produced on the surface to be measured with aid of transparency (note col. 3 lines 33-40). Thus, reasonably pertinent to particular problem of Bullock modified with which the applicant was concerned.

5. Applicant argues (remark page 7 lines 10-13) Kuhn does not disclose the object to be measured in accordance with the present invention is a metal strip. The argument is not persuasive because it is the position of the examiner Kuhn does disclose the object is a metal strip (note col. 7 lines 10-11). The invention may be used to map surface of an opaque object.

Specification

1. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Art Unit: 2625

2. The disclosure is objected to because of the following informalities: The specification does not contain section headings, such as BACKGROUND OF THE INVENTION, BRIEF SUMMARY OF THE INVENTION, DETAILED DESCRIPTION OF THE INVENTION and etc.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Art Unit: 2625

- (k) **SEQUENCE LISTING** (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Content of Specification

- (a) **Title of the Invention:** See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) **Cross-References to Related Applications:** See 37 CFR 1.78 and MPEP § 201.11.
- (c) **Statement Regarding Federally Sponsored Research and Development:** See MPEP § 310.
- (d) **Incorporation-By-Reference Of Material Submitted On a Compact Disc:** The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.
- Or alternatively, **Reference to a "Microfiche Appendix":** See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.
- (e) **Background of the Invention:** See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
- (1) **Field of the Invention:** A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."

Art Unit: 2625

- (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).

Art Unit: 2625

- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (k) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Claim Objections

3. Claims 9,10 and 11 are objected to because of the following informalities: These claims are improper. A method claim cannot depend on an apparatus claim.

Appropriate correction is required.

4. Claim 12 is objected to because of the following informalities: It appears to the examiner that claim 12 may have been intended to be a dependent claim. However, for the purpose of examination, examiner has addressed this claim in its current form.

Appropriate correction is required.

Art Unit: 2625

5. Claim 13 is objected because of the following informalities. Claim 13 is a hybrid claim. The use of an apparatus is neither an apparatus nor a method claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. The claims 4, 5, 7-13 provide insufficient antecedent basis throughout the application e.g., "the exposure time" in claim 5 line 2. These are just some of the examples of claim limitations that lack antecedent basis. Please make the appropriate corrections in the application.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Bullock et al (5,488,478).

Regarding claim 12 Bullock discloses,

Art Unit: 2625

Measuring the geometry of a known element of a measuring device (note col. 2 lines 40-43, examiner interprets projected light pattern onto the surface forming a light pattern as generation of reference plane) generating by computation a reference plane and a reference phase image from said measured geometry (note col. 2 lines 45-50 and 59-61, processed pattern must consider angle of projection examiner interprets as reference phase image).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1-3, 6-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al (5,488,478) in view of Kuhn et al (5,592,246).

Regarding apparatus claim 1 and use of apparatus claim 13 Bullock discloses,

Measuring the geometry and surface unevenness of metal strip (which reads on measuring the shape and surface flatness of steel strip of col. 1 lines 30-32) by producing a pattern on the surface to be measured (which reads on producing on the object surface a plurality of light patterns on col. 1 line 39), using a light source (note fig. 1 block 3 in connection with col. 3 lines 13-16, laser light source) and a camera (note fig. 1 block 5 in connection col. col. 2 lines 44-45, line scan camera) characterized in

Art Unit: 2625

that the pattern is produced on the surface 4 (note col. 2 lines 40-44, surface of the strip).

Bullock teaches using different light sources for projection. However Bullock is silent wherein the projection is with the aid of a transparency. Kuhn discloses pattern produced to be measured by projection with the aid of transparency (note col. 3 lines 33-40, Kuhn teaches liquid crystal create a pattern of light and dark areas of light source which read on transparency). Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to use a light source which projects with the aid of transparency in the system of Bullock as evidence by Kuhn. Creating a pattern of light and dark areas of light source would be a desirable feature in the art of three-dimensional mapping surface allowing any frequency of the electromagnetic spectrum to be contemplated (note col. 3 lines 38-40, Kuhn) and Kuhn recognizes that improved accuracy would be expected when the aid of transparency of Kuhn is included in the system of Bullock.

Regarding apparatus claim 2 Bullock and Kuhn discloses,

A changeable pattern is produced (note Bullock col. 4 lines 19-30, examiner interprets varying of strip speed depending on product and adjusting shows changeable pattern produced).

Regarding apparatus claim 3 Bullock and Kuhn discloses,

Art Unit: 2625

The pattern is produced with aid of liquid crystal device (note Kuhn col. 3 lines 33-34, pattern generator produce pattern with liquid crystal device).

Regarding apparatus claim 6 Bullock and Kuhn discloses,

A camera with non-linear sensitivity is used (note Kuhn col. 3 lines 55-65, well know ccd camera have non-linear sensitivity, and specification page 4 lines 22-31 describes non-linear sensitivity as having wide range of spectrums). Kuhn cites camera having a wide range of spectrum in col. 3 lines 55-65.

Regarding apparatus claim 7 Bullock and Kuhn discloses,

Projector and camera span with measurement points and angles, which are less than 90 degrees (note, Bullock col. 2 lines 45-50, projector camera span at 20 degree angles) and/or arrange on the same side laterally next to the object 4 (see fig. 1).

Regarding apparatus claim 8 Bullock and Kuhn discloses,

Projector and camera are arranging next to one another or above one another above the object 4 to be measure (note Bullock fig. 1 and fig. 4, the figure shows projector and camera arrange above one another above the object to be measured).

Regarding apparatus claim 9 Bullock and Kuhn discloses

Art Unit: 2625

Filtering elastic form changes using the initially detected peaks and the peaks and the peaks are separated according to different frequencies and wavelength on account to strip movement (Examiner interprets to the best of his knowledge, the claims discloses, wherein a signal is filtered note Bullock col. 4 lines 51-53).

Regarding apparatus claim 10 Bullock and Kuhn discloses,

Measuring by using the edge boundary of the strip (examiner interprets edge reading as edge boundary of the strip, note Bullock col. 4 lines 49-50)

Regarding apparatus claim 11 Bullock and Kuhn discloses,

The strip width or cut length is determined from the edge boundary (note Bullock col. 2 lines 57-64 and col. 4 lines 52-61, height or length of strip is determined from edge readings).

18. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock and Kuhn in further view of Murayama (6,137,541).

Regarding apparatus claim 4,

Bullock and Kuhn both teach a light source that projector illumination (note Kuhn fig. 2, block 12 pattern generation in connection with col. 3, lines 34-38, includes projector illumination) is regulated via the CPU (note fig. 2 block 16, in connection with col. 4 lines 5-10, control signal regulates pattern generator) determined by the camera in order to achieve a suitable control of the camera (note fig. 2 block 14, detector in

Art Unit: 2625

connection with col. 3 line 54 – col. 4 line 4 and col. 4 lines 24-28, detector sends and receives signal to/from CPU, thus being controlled and providing (determining) signal to CPU to regulate projector illumination). However Bullock and Kuhn do not specifically teach evaluation of the grey shades in the CPU. Murayama teaches a processing unit that evaluates grey shades (note fig. 6 block 5 in connection with col. 11 lines 5-46, cites computation unit, threshold value computation and conversion processing unit that evaluates the brightness values) to reduce smearing in an image (note col. 11 lines 48-66). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include evaluation of the grey shades in the CPU of Bullock as modified. Reducing smearing would have been a highly desirable feature in determining the shape of an object and Murayama recognizes that reducing smearing would be expected when the evaluation of grey shades is included in the system of Bullock as modified.

19. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock and Kuhn in further view of Van de Poel et al. (6,061,091).

Regarding claim Bullock and Kuhn discloses,

The camera is regulated via the CPU. However, Bullock as modified is silent with respect to the exposure time and /or aperture of the camera is regulated via the evaluation of the grey shades of the surface image determined by the camera, in order to achieve a suitable control of the camera 22. Van de Poel discloses exposure time and/or aperture (note col. 7 lines 52-55) is regulated via the evaluation of grey shades

Art Unit: 2625

of the surface image (note col. 7 line 65- col. 8 line 13, lines cite from the software of the host computer which includes density histogram (evaluation of grey shades) exposure time and/or aperture is regulated, wherein the image is from a camera), which reveals an over expose or under exposed image. Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to regulate via the evaluation of the grey shades of the surface image the exposure time and/or aperture. Revealing over-exposure or under exposure would have been a highly desirable feature in producing a pattern on a surface using a light source and camera, determining whether such pattern can be used (note col. 8 lines 30-35) would be expected when exposure time/and or aperture is regulated via evaluation of grey shades of Van de Poel is included in the system of Bullock as modified.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2625

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory M. Desire whose telephone number is (703) 308-9586. The examiner can normally be reached on M-F (8:30-6:00) Second Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

G.D.
June 17, 2004

Gregory M. Desire
Examiner
Art Unit 2625


BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600